Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
Wireless Operations in the 3650-3700 MHz Band	)	ET Docket No. 04-151
	)	
Rules for Wireless Broadband Services in the 3650-3700 MHz Band	)	WT Docket No. 05-96
	)	
Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3GHz Band	)	ET Docket No. 02-380
	)	
	)	ET Docket No. 98-237
Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band	)	

WRITTEN EX PARTE PRESENTATION OF
THE SATELLITE INDUSTRY ASSOCIATION

The Satellite Industry Association ("SIA"), pursuant to Section 1.1206 of the Commission's rules, 47 C.F.R. § 1.1206, hereby respectfully submits additional information relating to its Petition for Partial Reconsideration[1] in the above-captioned proceeding.[2] SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services

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[1] Petition For Partial Reconsideration of the Satellite Industry Association, ET Docket No. 04-151, WT Docket No. 05-96, ET Docket No. 02-380, ET Docket No. 98-237 (filed June 10, 2005) ("SIA Petition").

[2] *See* In the Matter of Wireless Operations in the 3650-3700 MHz Band, Rules for Wireless Broadband Services in the 3650-3700 MHz Band, Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3GHz Band, Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band, *Report and Order and Memorandum Opinion and Order*, 20 FCC Rcd 6502 (2005) ("*March 2005 Order*").

providers, and ground equipment suppliers. SIA is the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business.[3]

This submission addresses two points raised during a presentation to the Commission staff which took place on 25 May 2006.[4] Specifically, SIA provides additional information on the issues of: (i) "piggy-back" protection afforded to receive FSS earth stations operating in the conventional C-band by the protection zones around grandfathered receive FSS earth stations operating in the extended C-band; and (ii) the acceptable level of total wanted power plus interference that can be tolerated by FSS receive earth station operations.

I. PROTECTION AFFORDED TO CONVENTIONAL C-BAND RECEIVE EARTH STATIONS BY THE 150 KM EXCLUSION ZONE AROUND EXTENDED C-BAND RECEIVE EARTH STATIONS

The *3650 MHz Allocation Order*, released in October 2000, grandfathered existing FSS earth station operations in the 3650-3700 MHz band on a primary basis.[5] Consistent with the *3650 MHz Allocation Order*, the *March 2005 Order* established a protection zone of 150 km of radius centered on each grandfathered FSS receive earth

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[3] SIA Executive Members include: Artel Inc.; The Boeing Company; The DirecTV Group; Globalstar LLC; Hughes Network Systems LLC.; ICO Global Communications; Integral Systems, Inc.; Intelsat, Ltd.; Iridium Satellite LLC; Lockheed Martin Corp.; Loral Space & Communications Ltd.; Mobile Satellite Ventures LP; Northrop Grumman Corporation; PanAmSat Corporation; SES Americom, Inc.; and TerreStar Networks Inc.; and Associate Members; ATK Inc.; EMC Inc.; Eutelsat Inc.; Inmarsat Ltd.; IOT Systems; Marshall Communications Corp.; New Skies Satellites Inc.; Spacecom Corp.; Stratos Global Corp. Additional information can be found at <www.sia.org>.

[4] *See Ex Parte* Submission of PanAmSat Corporation (on behalf of SIA), ET Docket No. 04-151, WT Docket No. 05-96, ET Docket No. 02-380, ET Docket No. 98-237 (filed May 25, 2005) ("*May 25 Ex Parte*").

[5] *See* Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band, 15 FCC Rcd 20488 (2000). Subsequently, several additional earth stations were authorized to operate in the 3650-3700 MHz band on a primary basis based on proximity to grandfathered sites.

station operating in the 3650-3700 MHz band. Terrestrial operations should avoid these zones but may operate within them subject to agreement from the earth station operator.[6]

During the presentation by the SIA on 25 May 2006, it was suggested by the staff that these protection zones would ensure additional protection to receive earth stations operating in the adjacent conventional C-band and located within these zones. It was also noted that several of the zones are located in major population areas.

The extended C-band protection zones may provide additional protection to those conventional C-band receive earth stations located within and sufficiently far from the zone boundaries. However, SIA would note that while these zones indeed cover some densely populated areas, they in no way cover all major population centers or the majority of the territory of the United States.

Furthermore, assuming a terrestrial licensee successfully coordinates operations in the 3650-3700 MHz band with the operator of an extended C-band receive earth station, the actual operating restrictions – including geographic exclusion zones -- will be determined by the locations of terrestrial base and fixed stations relative to the extended C-band earth station, as well as terrain characteristics and other factors. Such coordination would occur without any regard to the presence or operating characteristics of any potentially affected FSS receive earth stations operating in the conventional C-band. Consequently, protection zones centered on grandfathered extended C-band receive earth station sites cannot be relied upon to protect conventional C-band receive earth station operations.

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[6] *See March 2005 Order* at ¶ 17.

Similarly, if an extended C-band earth station licensee relinquishes its license for a grandfathered earth station site (because of changes in plans, bankruptcy or any other reason), presumably earth stations operating in the conventional C-band (whether or not they belong to the operator of the grandfathered earth station) that previously received some indirect protection from interference caused by terrestrial operations in the 3650-3700 MHz band would suddenly lose such protection.

Accordingly, SIA believes that the 150 km protection zones associated with grandfathered extended C-band earth station sites at best provide precarious mitigation of the potential interference to conventional C-band receive earth station operations identified by SIA in its Petition and underscored during the recent presentation.

II. PROTECTION OF FSS RECEIVE EARTH STATIONS FROM HARMFUL LNB SATURATION

SIA also seeks to clarify its position with respect to necessary protection of conventional C-band receive earth stations to avoid saturation of the earth station low-noise block downconverters ("LNBs"). The tables in the *May 25 Ex Parte* indicating excess power levels above LNB saturation under various scenarios of interference (power received by the LNB from terrestrial operations below 3700 MHz) do not specify an acceptable level of total wanted power plus interference that can actually be tolerated by an FSS receive earth station, in part because it is difficult to identify a uniform level.

Depending on the specific LNB under consideration, the saturation level can be lower than the -55 dBm assumed in the *May 25 Ex Parte* analysis.[7] There are variations in performance between different LNB models and even between different lots from the same manufacturer. Thus, the -55 dBm level used in the analysis is merely a

[7] *See May 25 Ex Parte*, Attachment at 12.

representative value and a lower level may be required depending on the types of LNBs utilized.

In addition, the amplifier component of an LNB, much like any amplifier, must be operated in the so-called the "linear region" of its power transfer curve, a region below its saturation point. Operating in this region is necessary to avoid distorting the satellite signals being received. SIA believes that at least 3 dB of LNB input back-off would be required to avoid such distortion, particularly for digital signals with higher order modulation schemes. It is at this lower level, rather than the LNB saturation point, that FSS receive earth stations must operate.

Despite the difficulty in identifying an acceptable level of total wanted power plus interference, SIA has previously suggested designating the lower 25 MHz of the 3650-3700 MHz band to the higher-powered fixed base stations, which have an EIRP limit of 25 Watts, and designating the upper 25 MHz to mobile stations that transmit at lower power. Such designations would allow for adequate filtering of the higher-powered fixed base station signal by FSS earth stations outfitted with special filters,[8] and would reduce the potential for interference by limiting adjacent band operations to mobile terminals with lower transmit power. Such an approach also would be consistent with adopting the lower out-of-band emissions limits applicable to unlicensed devices for terrestrial wireless operations in spectrum adjacent to 3700 MHz.[9]

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[8] This spacing is required in order to allow the filters to work properly. If the higher-powered unwanted signal is placed in the immediately adjacent sub-band, it would be impossible to achieve the desired suppression of the unwanted signal without impacting the desired signal.

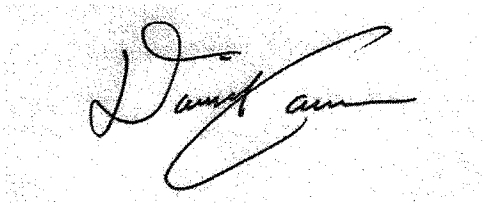
[9] *See generally* SIA Petition at 4-13.

III. CONCLUSION

For the foregoing reasons, SIA believes that Commission cannot simply rely on "piggy-back" protection from extended C-band band earth station sites to ensure that conventional C-band receive operations are adequately protected. In addition, the Commission should consider the issue of LNB saturation and limit operations in the upper 25 megahertz of the 3650-3700 MHz band to lower-power mobile operations only.

Respectively submitted,

SATELLITE INDUSTRY ASSOCIATION



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